Air Quality Permitting
Statement of Basis

August 18, 2005

Permit to Construct No. P-050116

Chilco Lake Lumber Company, LLC
d.b.a. Riley Creek – Chilco Sawmill, Athol

Facility ID No. 055-00024

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FINAL

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Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BDT	Bone Dry Tons
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
dscf/min	dry standard cubic feet per minute
EFB	Electrified Filter Bed
EPA	U.S. Environmental Protection Agency
ERC	emission reduction credits
ft^2	square feet
gr	grain (1 lb = 7,000 grains)
gr/dscf	grains per dry standard cubic foot
HAPs	hazardous air pollutants
hr/yr	hours per year
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb	pound
lb/hr	pound per hour
lb/yr	pound per year
MACT	Maximum Achievable Control Technology
MMBtu/hr	million British thermal units per hour
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PW	process weight
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
T	tons
T/yr	tons per any consecutive 12-month period
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Chilco Lake Lumber Company, LLC, d.b.a. Riley Creek – Chilco Sawmill (Riley Creek), produces dimensional lumber. The primary processes at the facility are the sawmill, steam plant, kilns, planer mill, and by-products handling.

Logs are stored in the log yard until they can be processed. Logs are debarked, then cut to dimension in the sawmill. Bark from the debarker is hogged and pneumatically transferred to hog fuel storage or to the hog fuel boiler. Surplus bark is sold as a by-product. Green lumber is cut to length in the sawmill, dried in the facility's kilns, and planed in the planer mill. The finished lumber is packaged and shipped by truck or by railcar. By-products include bark, sawdust, sawmill chips, planer chips, and shavings. By-products are shipped off site by truck.

On August 20, 2004, DEQ issued PTC No. P-040100 to Riley Creek for its Chilco Sawmill. PTC No. P-040100 is the facility's most recently issued permit. For the remainder of this document, PTC No. P-040100 is referred to as the "existing permit."

3. FACILITY / AREA CLASSIFICATION

The facility is not a major facility as defined by IDAPA 58.01.01.205, because its potential to emit is limited to less than 250 T/yr, the applicable major source trigger. The facility is a major facility as defined by IDAPA 58.01.01.008.10.c, because its potential to emit is greater than or equal to 100 T/yr, the applicable major source trigger. The facility is not a designated facility as defined by IDAPA 58.01.01.006.27. The SIC code defining the facility is 2421, *Sawmills and Planing Mills, General.* The AIRS facility classification is "A". The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at the facility. This required information is entered into the EPA AIRS database.

The facility is located within AQCR 62 and UTM zone 11. The facility is located in Kootenai County, which is classified as unclassifiable for all criteria air pollutants.

4. APPLICATION SCOPE

Riley Creek has submitted an application for the following changes to its Chilco Sawmill:

1) Increase the hog fuel boiler's annual steam production limit to 607,593,600 pounds. The current limit is inadequate.

   This change is a modification because it results in an increase of approximately 6.08 tons of CO per year from the hog fuel boiler.

2) Remove all references, terms, and conditions related to the natural gas backup boiler. Riley Creek has decided to not construct the backup boiler.

   This change is a revision to the existing permit because it does not result in an increase in emissions.

3) Remove all reference, terms, and conditions for the planer mill. Riley Creek has rerouted the two permitted point sources to the interior of the planer mill building to maintain building pressure and recover energy for building heat. As a result of these physical changes, the planer mill is no longer a source.

   This change is a revision to the existing PTC because it does not result in an increase in emissions.

4) Add requirements for a hog fuel cyclone. Riley Creek has installed a pneumatic conveyance system for the hog fuel used by the hog fuel boiler. Initially, a mechanical conveyance system was to be used, but those plans changed. Part of the pneumatic conveyance system is a high efficiency hog fuel cyclone. This cyclone is a new point source.

   This change is a modification because it results in an increase of approximately 1.49 tons of PM_{10} per year.

4.1 Application Chronology

June 9, 2005	DEQ receives application
June 30, 2005	DEQ inactivates the application due to resource constraints
August 3, 2005	DEQ activates the application
August 4, 2005	DEQ determines the application complete
August 19, 2005	DEQ provides a draft permit and statement of basis to the facility and to the Coeur d'Alene Regional Office for review via e-mail followed up by hard copy via U.S. Mail

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

The following equipment has been reviewed as part of this PTC action:

- Hog fuel boiler
- Hog fuel cyclone

5.2 Emissions Inventory

5.2.1 Hog Fuel Boiler

Riley Creek proposes to increase the amount of steam produced by the hog fuel boiler on an annual basis only. Riley Creek does not propose to increase hourly steam production. Hourly steam production is currently limited by the facility's existing permit.

CO is the regulated criteria air pollutant emitted in the greatest quantity from the hog fuel boiler. The existing permit limits CO emissions to 240 T/yr to remain a minor facility for PSD permitting purposes. This limit was requested by Riley Creek and incorporated into the existing permit by DEQ. This limit was then used to back-calculate an allowable annual steam production limit, which was used a surrogate operating parameter upon which compliance with the CO emissions limit could be assessed. As is shown later in this document, annual steam production does not need to be limited because CO emissions are less than anticipated as determined through performance testing.

For background information, the following narrative explains how the existing emissions limits and steam production limits were established.

The existing permit limits the hog fuel boiler to the following with respect to CO emissions:

CO limits:	90 lb/hr
	240 T/yr
	1.3 lb CO/1,000 lb steam
Steam production limits:	69,360 lb/hr, 24-hr average
	369,230,769 lb/yr (rolling 12-month)

Methodology Used to Establish Allowable CO Limits

The allowable or permitted limits were established as shown in the following equations:

Eq.1 $(125 MMBtu/hr)(0.72 lbCO/MMBtu) = 90 lbCO/hr$

Where: 125 MMBtu/hr is the maximum heat input rate of the hog fuel boiler

0.72 lb CO/MMBtu is the CO emission factor supplied by Riley Creek for the boiler

Note: The emission factor supplied by Riley Creek is greater than the applicable emissions factor provided by AP-42 (0.60 lb CO/1,000 lb steam). Riley Creek's CO emission factor is higher than AP-42's; therefore, it is conservative.

Eq.2 $(90 lbCO/hr)/(69{,}360 lbsteam/hr) = 1.3 lbCO/lbsteam$

Based on the review of Riley Creek's source file, the hourly steam production limit was proposed by Riley Creek and incorporated into the current permit by DEQ. The limit was proposed to limit the hog fuel boiler's potential to emit. For the reader's information, the maximum hourly steam production rate is 75,000 pounds.

Eq.3 $(240 TCO/yr)/(1.3 lbCO/1{,}000 lbsteam)(2000 lb/1T) = 369{,}230{,}769 lbsteam/yr$

As shown in Eq.3, the annual steam production rate limit was back-calculated from the annual CO limit of 240 T/yr. Riley Creek requested that DEQ impose an enforceable CO emissions limit to limit the facility's emissions to less than 250 T/yr, the applicable PSD trigger.

Compliance Demonstration with Allowable Limits

The existing permit requires that Riley Creek conduct a performance test to measure CO emissions to demonstrate compliance with the CO emissions limits in the permit. Riley Creek conducted the test on March 29, 2005 to satisfy the testing requirement. Riley Creek also tested for PM and PM_{10}, but was not required to do so by the permit.

A summary of the performance test results is provided in Table 5.1. Also provided are the allowable emissions limits for comparison. DEQs June 8, 2005 performance test evaluation approval letter and source test review sheet are attached as Appendix B in support of the performance test data.

Table 5.1 ALLOWABLE EMISSIONS VERSUS MEASURED EMISSIONS COMPARISON

HOG FUEL BOILER/EFB STACK			
Pollutant	**Units**	**Measured Emissions Rates**	**Allowable Emissions Limits**
CO	lbCO/1,000 lb steam	0.46	1.3
	lb/hr	28.8	90
PM	lbCO/1,000 lb steam	0.009	0.08
PM_{10}	lb/hr	2.08	6.93

Steam production for the hog fuel boiler has been based on the amount of CO emitted by the hog fuel boiler. It stands to reason then, if CO emissions decrease, steam production should increase. Likewise, if CO emissions increase, steam production should decrease. Because the current annual steam production limit is inadequate and the fact that the measured CO emissions rate is around one-third of the allowable emissions limit, Riley Creek looked at increasing steam production based on the performance test data. A correlation between CO production and steam production is highly variable due to combustion characteristics (e.g. temperature, moisture, etc.), but with the state of the art computer controls employed, CO should remain fairly consistent with the value measured during the test. The following narrative and supporting calculations convey the methodology provided by Riley Creek to establish a new annual steam production limit to comply with CO emissions limits.

Methodology Used to Establish Modified Limits

As previously stated, annual steam production was back-calculated from the allowable CO emissions limits (240 T/yr and 1.3 lb CO/1,000 lb steam produced). The performance test results, however, show that the measured CO emissions are roughly one-third of the allowable CO emissions (0.46 lb CO/1,000 lb steam versus 1.3 lb CO/1,000 lb steam). Riley Creek states in its permit application that CO emissions have been dramatically reduced from predicted allowable levels due to the installation state of the art computer controls that automatically adjust fuel and oxygen so optimal combustion occurs.

Referring to Table 5.1, the measured CO emissions were 0.46 lb CO/1,000 lb steam versus the allowable CO emissions limit of 1.3 lb CO/1,000 lb steam. In order to increase steam production and still remain minor for PSD permitting, Riley Creek has requested that DEQ impose an enforceable limit of 0.81 lb CO/1,000 lb steam produced. Compliance with this new limit will be assessed through performance testing.

Eq.4 $(0.81 lbCO / 1000 lbsteam)(69{,}360 lbsteam / hr) = 56.2 lbCO / hr$

Note: this results in a decrease of approximately 30 lb CO/hr. Again, steam production is limited to the amount in the existing permit, 69,360 lb steam/hr averaged over any consecutive 24-hour period.

Eq.5 $(0.81 lbCO / 1000 lbsteam)(69{,}360 lbsteam / hr)(8760 hr / yr)(1T / 2000 lb) = 246.08 TCO / yr$

Here, it's evident that annual steam production is independent of annual CO emissions. The two factors that determine the boiler's potential to emit CO are the new CO emissions limit (0.81 lb CO/1,000 lb steam) and the existing hourly steam production limit (69,360 lb steam/hr) averaged over any consecutive 24-hour period.

Eq.6 $(69{,}360 lbsteam / hr)(8760 hr / yr) = 607{,}593{,}600 lbsteam / yr$

If annual steam were to be limited, it would simply be limited to the product of the hourly steam production limit and 8,760 hr/yr. All Eq.6 indicates is the amount of steam that would be produced if the boiler operated at its allowable hourly limit all year long. Obviously, this approach provides no limit on the boiler's potential to emit; therefore, it makes no regulatory or environmental sense to impose this limit in the modified permit.

To reiterate, the factors that do determine the hog fuel boiler's potential to emit CO are the new CO emissions limit (0.81 lb CO/1,000 lb steam) and the existing hourly steam production limit (69,360 lb steam/hr averaged over any consecutive 24-hour period). These limits have been incorporated into the modified permit and are enforceable. Performance testing and hourly steam production monitoring are the mechanisms upon which compliance with the limits will be determined.

In summary, the following limits apply to the hog fuel boiler as a result of this modification:

1) Limit CO emissions to 0.81 lb CO/1,000 lb steam produced
2) Limit hourly steam production to 69,360 lb/hr averaged over any consecutive 24-hour period
3) Limit CO annual emissions to 246.08 T/yr

5.2.2 Hog Fuel Cyclone

Riley Creek provided the following process description for the hog fuel cyclone.

Chilco's hog fuel cyclone is a Western Pneumatics, Inc., high-efficiency, 72 primary filter, 6,000 ACFM system with hog fuel handling design capacity of 50 tons/hour. Normal operating range is 30-35 tons/hour. The hog fuel cyclone is located on a support structure with catwalks, above and on the east unit of the hog fuel truck bins, adjacent to the south side of the hog fuel storage building, approximately 80 feet above ground surface. (Annotated Photo attached as Appendix C)

Hog fuel is conveyed from the sawmill hog via inclined screw conveyor to a three-unit surge bin and metered into the 12 3/4" high pressure pneumatic system to the hog fuel cyclone. High pressure cyclones are designed to operate with high air velocities and large material concentrations. The cyclone separates transport air from the hog fuel using centrifugal and gravitational forces. The cyclone is comprised of inlet, cone, and bag sections. When hog fuel enters the system from the pneumatic conveyance, transport air and hog fuel are directed in a downward spiral around the wall of the cyclone. Friction against the wall of the cyclone slows the speed of the hog fuel particles and gravity causes larger particles to fall to the bottom of the cyclone's cone section. According to the manufacturer, the inlet and cone section is approximately 95% efficient in removing 10 micron and larger particulate.

Upon reaching the bottom of the cone section, the transport air, now carrying only fine particulate, swirls upwards in a central vortex to the bag section of the cyclone. There are 72 filter bags in the cyclone's bag section with a total cloth area of 943 square feet. The filter air-to-cloth ratio is 6,000 ACFM divided by 943 = 6.36:1. The filter bags have a removal efficiency of 99.997% for two micron and greater particulate, according to Western Pneumatics. A filter purge fan system pushes air the opposite direction through the bags to remove particulate collected on the bags. The filter purge fan is located at ground level at the foot of the hog fuel truck bins (Fig. 2a). Removed particulate is reintroduced into the inlet section of the cyclone. Cleaned air exits from the bag section through two horizontal vents on opposite sides near the top of the cyclone. Exit diameter of each vent is approx. one foot.

Hog fuel at the bottom of the cone section passes through the rotary air lock to a diverter gate. From the diverter gate, mechanical conveyors move the fuel to the truck bins for transport to outside customers, or to the hog fuel storage building for eventual use in the boiler. The hog fuel storage building is a roofed, three-sided structure. In addition to receiving hog fuel directly from the sawmill hog through the cyclone, if needed hog fuel may also be delivered to the building by trucks. In the hog fuel storage building a "live" section of the floor moves hog fuel from the storage building to a conveyor which carries the fuel up an incline to the boiler stokers to be injected and burned in the boiler.

PM_{10} and PM emissions from the cyclone were estimated by Riley Creek using a DEQ's *Idaho DEQ Emission Factor Guide for Wood Industry*, 1/08/97. The following equation was used to estimate emissions:

Eq.7 PM_{10} =

$$(6{,}000 dscf / \min)(60 \min / hr)(0.011 gr / dscf)(1 - 0.4)(1 lb / 7{,}000 grains) = 0.34 lb / hr$$

Eq.8 PM =

$$(6{,}000 dscf / \min)(60 \min / hr)(0.015 gr / dscf)(1 - 0.4)(1 lb / 7{,}000 grains) = 0.46 lb / hr$$

Where: 6,000 dscf/min = hog fuel cyclone flowrate

0.011 gr/dscf = DEQ cyclone emission factor for PM_{10}

0.015 gr/dscf = DEQ cyclone emission factor for PM

0.4 = emission factor adjust for moisture content (DEQ guidance document)

Note: 0.34 lb/hr is the uncontrolled potential to emit. The cyclone manufacturer states the PM_{10} control efficiency is 95%. Controlled hourly PM_{10} emissions would be approximately 0.02 lb/hr (0.34 lb/hr)(1-0.95).

Annual PM_{10} emissions are the product of the hourly emissions and 8,760 hr/yr (0.34 lb/hr*8,760 hr/yr*1 T/2,000 lb = 1.49 T/yr), which represents the uncontrolled potential to emit. Controlled annual PM10 emissions would be approximately 0.07 T/yr (1.49 T/yr)(1-0.95). The same argument holds true for PM emissions.

With respect to process weight regulations (IDAPA 58.01.01.701), Riley Creek states the maximum design capacity of the cyclone is 50 T/hr, which is equivalent to 100,000 lb/hr, which is also the process weight for the cyclone.

Because the process weight is greater than 9,250 lb/hr, the applicable process weight equation, in accordance with IDAPA 58.01.01.701, is the following:

Eq.9 $E = 1.10(PW)^{0.25}$

$E = 1.10(100{,}000)^{0.25}$

$E = 19.56$ lb/hr

Where: E = allowable emissions from the entire source

PW = process weight

As shown in Eq.9, the allowable emissions from the pneumatic conveyance system hog fuel cyclone (i.e. entire source) is 19.56 lb/hr. The potential to emit PM_{10} as provided by Riley Creek is 0.46 lb/hr. The potential to emit is much less than the allowable emissions limit; therefore, the hog fuel cyclone will be in compliance with IDAPA 58.01.01.701. Monitoring and recordkeeping of process weight to the cyclone is not required.

With respect to visible emissions from the hog fuel cyclone, Permit Condition 2.7 requires that opacity from any point of emissions, which includes the hog fuel cyclone, shall not exceed 20% opacity for more than three minutes in any 60-minute period. Permit Condition 2.8 requires a monthly facility-wide inspection of potential sources of visible emissions to ensure the emissions do not exceed 20% opacity. The mechanisms are in place upon which compliance with the visible emissions regulation can be demonstrated for the hog fuel cyclone.

The hog fuel cyclone is regulated in the modified permit as a new source with an annual PM_{10} emissions limit of 1.49 T/yr. Source testing is not required for the cyclone because 1) modeling predicts its uncontrolled emissions will not violate any ambient standard, and 2) 1.49 T/yr represents the uncontrolled potential to emit. The following permit conditions have been developed by DEQ for the hog fuel cyclone to protect the PM_{10} ambient air quality standards:

1) Hog Fuel Cyclone Minimum Design Requirements

The hog fuel cyclone shall meet the following specifications for the control of PM_{10} emissions:

- Exhaust stream flowrate through the cyclone (acfm): 6,000
- Cyclone filter bag section total cloth area (ft^2): 943
- Filer bag minimum control efficiency for PM_{10} (%): 99.9

2) PM_{10} emissions from the hog fuel cyclone shall not exceed 1.49 tons per any consecutive 12-month period.

3) The permittee shall comply with the visible emission requirements of Permit Condition 2.7.

4) Pressure Drop Monitoring Device

- The permittee shall install, calibrate, maintain, and operate a pressure drop monitoring device to continuously measure the pressure differential across the hog fuel cyclone.
- The pressure drop across the hog fuel cyclone shall remain within manufacturer specifications and recommendations. This pressure drop range shall be made available to DEQ representatives upon request.

5) Pressure Drop Monitoring

The permittee shall monitor and record the pressure drop across the hog fuel cyclone once per week while the hog fuel cyclone is operating. This information shall be maintained in accordance with Permit Condition 2.12.

Revised Permit Conditions

5.2.3 Natural Gas-fired Backup Boiler

Riley Creek is currently allowed to construct and operate a natural gas-fired backup boiler. Riley Creek has decided to not construct the boiler and has requested that all references, terms, and condition related to the backup boiler be deleted. All references to the natural gas backup boiler have been deleted in the modified permit.

For PTC processing fees purposes, the following decreases have been taken into account:

Table 5.2 NATURAL GAS BOILER EMISSIONS DECREASES (PTC PROCESSING FEES PURPOSES)

	PM_{10}	SO_2	NO_X	VOC	CO
Natural gas backup boiler	T/yr	T/yr	T/yr	T/yr	T/yr
	1.96	0.04	19.6	0.31	6.18

With respect to Emissions Reduction Credits (ERCs), ERCs are only available if the proposed level of allowable emissions are less than the actual emissions of the stationary source or emissions unit providing the emissions reduction credit (refer to IDAPA 58.01.01.460.01). In this case, the allowable emissions are greater than the actual emissions (i.e. actual emissions are zero for all pollutants because the backup boiler was never constructed, or operated). Because the allowable emissions are greater than, not less than, the actual emissions, ERCs are not available for the backup boiler.

5.2.4 Planer Mill

Riley Creek is currently allowed to construct and operate a planer shavings cyclone and a planer chip target box. Emissions from these two point sources were to be vented to the atmosphere from a baghouse stack and a vent stack, respectively. The allowable PM_{10} emissions from these two sources are 5.44 T/yr and 0.40 T/yr, respectively. As the Chilco Sawmill was being constructed, Riley Creek decided to vent these point sources through the shavings bin baghouse and back into the interior of the planer mill building to maintain building pressure and recover energy for building heat. As a result of these physical changes, these two point sources no longer exist. The modified permit, however, requires that the planer shavings cyclone baghouse stack and the planer chip target box vent exhaust to the interior of the planer mill building.

For PTC processing fees purposes, the following decreases have been taken into account:

Table 5.3 PLANER MILL EMISSIONS DECREASES (PTC PROCESSING FEES PURPOSES)

Source Description	PM_{10} T/yr
Planer shaving cyclone baghouse stack	5.44
Planer chip bin target box vent	0.40

5.3 Modeling

The modeling analysis has demonstration of compliance with the applicable NAAQS to the satisfaction of DEQ. DEQs modeling memorandum is included as Appendix D.

It should be noted that PM_{10}, SO_2, NO_x, and VOC emissions are specifically limited in the existing permit. A full impact modeling analysis was conducted in support of the issuance is the existing permit. A full impact analysis takes into account all sources at a facility and all associated emissions. The modeling analysis predicts that the ambient impact of SO_2 and NO_x emissions are less than 25% of all applicable averaging periods taking into account all enforceable operating restrictions (i.e. steam production). If Riley Creek demonstrates compliance with the enforceable operating restrictions, then compliance with the ambient standards for SO_2 and NO_x are also demonstrated. Because operations do not need to be restricted to demonstrate compliance with any SO_2 or NO_x ambient standard and performance testing is not required as a means to demonstrate compliance with an emissions standard, then these pollutants do not need to be specifically limited in the permit, but rather, documented in this statement of basis. Therefore, SO_2 and NO_x emissions are not specifically limited in the modified permit but are quantified below:

Table 5.4 HOG FUEL BOILER VOC, SO_2 AND NO_X POTENTIAL TO EMIT SUMMARY

Hog fuel boiler	VOC		SO_2		NO_x	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
	7.75	33.9	3.13	13.7	27.5	120.5

An ambient air quality standard does not exist for VOC emissions. The only reason to have VOCs specifically limited in a permit is if they establish a facility's potential to emit (i.e. establish if the facility is a minor facility or a major facility). In this case, the potential to emit VOCs is much less than any major source trigger. Therefore, VOC emissions are not specifically limited in the modified permit but are document in this statement of basis.

PM_{10} emissions were predicted to 95% of the 24-hour ambient standard and 66% of the annual ambient standard. PM_{10} emissions, will therefore, remain limited in the modified permit.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

This modification does not qualify for a PTC exemption in any Sections 220, 221, 222, or 223. Therefore, a PTC is required.

IDAPA 58.01.01.203 ..... Permit Requirements for New and Modified Stationary Sources

Riley Creek has shown to the satisfaction of DEQ that this modification will comply with emissions standards, ambient air quality standards, and toxic air pollutant requirements.

IDAPA 58.01.01.313.01.e.iii ..... Original Tier I Operating Permits

Sources that become Tier I sources after January 1, 2005, that are located at a facility not previously authorized by a Tier I operating permit, the owner or operator of the Tier I source shall submit to the DEQ a complete application for an original Tier I operating permit within 12 months after becoming a Tier I source or commencing operation, unless the DEQ provides written notification of an earlier date to the owner or operator.

IDAPA 58.01.01.625 ..... Visible Emissions

Riley Creek's Chilco Sawmill is subject to the visible emissions standard contained in IDAPA 58.01.01.625. Permit Conditions 2.7 and 2.8 regulate all point sources in accordance with IDAPA 58.01.01.625 and require monthly facility-wide inspections to ensure compliance with IDAPA 58.01.01.625.

IDAPA 58.01.01.701 ..... PM – New Equipment Process Weight Standards

The hog fuel cyclone is subject to this regulation. This statement of basis provides the documentation that the hog fuel cyclone is in compliance with the applicable process weight PM limit.

40 CFR 60, 61, and 63 ..... NSPS, NESHAP, MACT Requirements

This modification is not subject to any federal NSPS, NESHAP, or MACT requirement.

5.5 Fee Review

The permit application fee of $1,000 required by IDAPA 58.01.01.224 was received on June 9, 2005. In addition to the application fee, Riley Creek also submitted a processing fee of $1,000 because they predicted an increase in emissions of less than 1.0 T/hr. However, taking into account all increases as decreases as required by IDAPA 58.01.01.225, there is net decrease of 26.36 T/yr. Because there is a net decrease in emissions, a PTC processing fee is not required. DEQ will refund the $1,000 processing fee to Riley Creek.

Table 5.5 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0	19.6	19.6
SO_2	0	0.04	0.04
CO	6.08	6.18	0.10
PM_{10}	1.49	7.80	6.31
VOC	0	0.31	0.31
TAPS/HAPS	0	0	0
Total:	**7.57**	**33.93**	**26.36**
Fee Due	**$ 0.00**		

Riley Creek is a major facility in accordance with IDAPA 58.01.01.008.10. Therefore, registration and registration fees are required in accordance with IDAPA 58.01.01.387.

6. PERMIT CONDITIONS

This section describes the changes made to the permit as a result of this modification. Existing permit conditions are identified as "Existing Permit Condition." Modified or revised permit conditions are identified similarly. Only the permit conditions that have changed are identified in this section. All other permit conditions remain unchanged.

Existing Permit Condition 2.14 incorporates the fuel burning equipment grain loading standards for sources that combust gas fuel and wood fuel. This permit condition has been deleted because gas fuel will not be used at the Chilco Sawmill. Riley Creek has decided to not construct the proposed natural gas backup boiler, the only gas-fired source at the facility. The fuel burning equipment grain loading standard for wood fuel has been incorporated as a specific permit condition in the hog fuel boiler section of the modified permit.

Existing Permit Condition 3.3 does not limit CO emissions specifically in Table 3.2. CO emissions are limited in Existing Permit Condition 3.4 and represent the sum total for the hog fuel boiler and the proposed backup boiler. Because the backup boiler will not be constructed, the facility's potential to emit CO is that of the hog fuel boiler, which is specifically limited in Modified Permit Condition 3.3.

Modified Permit Condition 3.3 only limits annual CO emissions from the hog fuel boiler to 246.08 T/yr, an annual increase of 6.08 T/yr. The modeling analysis conducted for the existing permit predicted short-term CO impacts of approximately 36% of the 1-hour ambient standard and 48% of the eight-hour ambient standard. With the operating and emissions limits as enforceable permit conditions, there is no way the hog fuel boiler could exceed any applicable short-term ambient standard. Therefore, the short-term CO limit is not included in the modified permit.

Existing Permit Condition 3.5 limits CO emissions from the hog fuel boiler to 1.3 lb CO/1,000 lb steam produced.

Revised Permit Condition 3.4 limits CO emissions from the hog fuel boiler to 0.81 lb CO/1,000 lb steam produced based on the results of the March 29, 2005 performance test. The measured CO emissions were 0.46 lb CO/1,000 lb steam produced. Riley Creek requests that DEQ impose and enforceable CO emissions limit from the hog fuel boiler of 0.81 lb CO/1,000 lb steam produced to limit annual CO emissions below 250 T/yr, the applicable PSD trigger. Performance testing is required at least once every five years as the means to demonstrate compliance with the CO emissions limit.

Existing Permit Conditions 3.8, 3.12, 3.15 all relate to the natural gas backup boiler. Because this source will not be constructed, all respective permit conditions have been deleted.

Existing Permit Condition 3.10, second bullet, annual steam production rate limit. This limit has been deleted due to the results of the hog fuel boiler performance test. The limit was back-calculated from the annual hog fuel boiler CO limit of 240 T/yr. Because the measured CO emissions were much less than initially anticipated, annual steam production does not have to be limited to limit annual CO emissions. The limits required to limit annual CO emissions are hourly steam production, which is already limited, and the requested CO emissions limit of 0.81 lb CO/1,000 lb steam produced, both of which are in the modified permit as enforceable permit conditions.

Modified Permit Condition 3.8 contains the hourly steam production limit of 69,360 lb steam averaged over any consecutive 24-hour period. Annual steam production is no longer limited.

Existing Permit Condition 3.11 does not contain a requirement to install, calibrate, maintain, and operate a pressure drop monitoring device to measure the pressure differential across the EFB baghouse.

Modified Permit Condition 3.9 contains the requirement to install, calibrate, maintain, and operate a pressure drop monitoring device to measure the pressure differential across the EFB baghouse. This requirement is contained in many other permits issued by DEQ and including it in this modified permit makes for overall consistency and does not burden the facility because a device already exists.

Existing Permit Conditions 6.1 through 6.13 relate to the planer mill. Because emissions from the planer mill activities are no longer exhausted to the atmosphere, the planer mill no longer has the potential to emit. As a result, existing Permit Conditions 6.1 through 6.13 no longer apply.

Revised Permit Condition 2.14 requires that the two formerly permitted sources associated with the planer mill not emit any emissions to the atmosphere. This condition makes enforceable Riley Creek's physical change to the planer mill.

Modified Permit Condition 6.2 specifies the minimum flowrate, minimum cyclone filter bag total cloth area, and minimum filter bag PM_{10} control efficiency for the hog fuel cyclone. These requirements ensure that the cyclone, or any replacement, will not exceed the anticipated emissions listed in Riley Creek's permit application and DEQs subsequent analyses.

Modified Permit Condition 6.3 limits PM_{10} emissions from the hog fuel cyclone to 1.49 T/yr.

Modified Permit Conditions 6.5 requires that Riley Creek install, calibrate, maintain, and operate a pressure drop monitoring device to measure the pressure differential across the hog fuel cyclone. This requirement will ensure Riley Creek operates the cyclone optimally. The cyclone is the key component to the hog fuel pneumatic handling system and its optimal operation is essential to maintaining air quality standards.

Modified Permit Condition 6.6 requires that Riley Creek monitor and record the pressure drop across the hog fuel cyclone one per week while operating. This requirement provides the enforceability component of Modified Permit Condition 6.5.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

Regional office review was provided in conjunction with the facility review of the draft permit.

7.2 *Facility Review of Draft Permit*

A facility draft permit was provided on August 19, 2005 via e-mail followed up with hard copy via U.S. Mail.

7.3 *Public Comment*

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that Riley Creek be issued final PTC No. P-050116 for the changes identified in this document. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

BR/sd Permit No. P-050116

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APPENDIX A

AIRS Information

P-050116

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	B					B	U
NO_x	A					A	U
CO	A					A	U
PM_{10}	B					B	U
PT (Particulate)	B		B			NA	U
VOC	B					B	U
THAP (Total HAPs)	B					B	
			APPLICABLE SUBPART				
			DC				

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

APPENDIX B

Source Test Review Sheet
(March 29, 2005 Hog Fuel Boiler Source Test)

And

DEQs June 8, 2005 Performance Test Evaluation Approval Letter

P-050116

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway • Coeur d'Alene, Idaho 83814-2648 • (208) 769-1422

Dirk Kempthorne, Governor
Toni Hardesty, Director

June 8, 2005

Ms. Glenda Empsall, Environmental Manager
Chilco Lake Lumber Company, LLC
4447 East Chilco Road
Athol, Idaho 83801

Subject: Evaluation of the Performance Test Report on Kipper & Sons Hog Fueled Boiler
Chilco Lake Lumber Company, LLC (AIRS No. 055-00024)

Dear Ms. Empsall:

On April 28, 2005, the Department of Environmental Quality (DEQ) received a performance test report for tests conducted on the exhaust of the Kipper & Sons Hog Fueled Boiler at the Chilco Lake Lumber Athol facility. DEQ understands Chilco Lake Lumber is currently doing business as Riley Creek Chilco Sawmill (Riley Creek). On behalf of Riley Creek, Bighorn Environmental Air Quality conducted particulate matter (PM) and carbon monoxide (CO) performance tests on the exhaust of the electrified filter bed dust collector associated with the boiler. The tests were conducted in accordance with the Environmental Protection Agency's Methods 5/202 and 10 on March 29, 2005 to demonstrate compliance with Permit to Construct (PTC) No. P-040100, issued August 20, 2004. Riley Creek submitted a test protocol to DEQ January 6, 2005; DEQ approved the protocol via a letter issued on January 19, 2005.

Permit Conditions 3.3, 3.5, and 3.7 of PTC No. P-040100, establish particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometer (PM_{10}), CO, and PM emissions limits, respectively, for the boiler exhaust stack. Table 1 presents the emissions limits and measured emissions.

Table 1. Measured Emissions and Emissions Limits

Permit Condition	Pollutant	Emissions Limit	Measured Emissions
Permit Condition 3.3, Permit to Construct No. P040100, 8/20/2004	PM_{10}[a]	6.93 pounds per hour	2.08 pounds per hour[b]
Permit Condition 3.5, Permit to Construct No. P040100, 8/20/2004	Carbon Monoxide	1.3 pounds per 1,000 pounds steam produced	0.46 pound per 1,000 pounds steam produced
Permit Condition 3.5, Permit to Construct No. P040100, 8/20/2004	Particulate Matter	0.080 grain per dry standard cubic foot at 8% oxygen content	0.009 grain per dry standard cubic foot at 8% oxygen content

[a] Particulate matter with an aerodynamic diameter less than a nominal 10 micrometers.
[b] All measured particulate matter emissions were assumed to be PM_{10}.

Based on the information in the performance test report, DEQ has determined that the Methods 5/202 and 10 tests on the boiler exhaust stacks successfully demonstrated compliance with the emissions limits

established in Permit Conditions 3.3, 3.5, and 3.7 of PTC No. P-040100, issued August 20, 2004. DEQ accepts the testing as a demonstration of compliance for the Kipper & Sons Hog Fueled boiler when operated in accordance with PTC No. P-040100.

Permit Condition 3.13 of PTC No. P-040100 states, in part, "If the CO emission measured during the performance tests is less than or equal to 75% of the CO emissions limit listed in Permit Condition 3.5, the next test shall be conducted within five years of the test date." The measured CO emissions were approximately 35% of the CO emissions limit listed in Permit Condition 3.5. Therefore, Riley Creek must conduct the next CO performance test by March 29, 2010.

PTC No. P-040100 does not require additional testing to determine PM or PM_{10} emissions.

Please call me at (208) 769-1422 if you have any questions regarding this performance test evaluation.

Sincerely,

Tom Harman
Air Quality Program Manager

TH:vh G:\Air Quality\5 Air Quality Files by Facility Name and AIRs#\Chilco Lake Lumber Company Athol 055-00024\ltrEmpsall Chilco Lake 055-00024 060805.DOC

c: [redacted] Technical Services Division
Stationary Source Program Office, DEQ, Boise
Source File, Cd'A

Source Test Review Sheet

Facility Name: Chilco Lake Lumber -d.b.a. Riley Creek; Chilco Sawmill **AIRS #:** 055-00024
Emission Unit: Kipper & Sons Hog Fueled Boiler
Pollutant: Particulate Matter and Carbon Monoxide
Test Methods: 1, 2, 4, 5/202, 9, and 10

Measured PM Emissions: 0.009 grain per dry standard cubic foot (as measured by Method 5 only)
PM Emission Limit: 0.080 grain per dry standard cubic foot at 8% oxygen content
(IDAPA 58.01.01.676; Permit Condition 3.7, PTC No. P-040100, August 20, 2004)

Measured PM Emissions: 2.08 pounds per hour (as measured by Methods 5 and 202)
PM_{10} Emission Limit: 6.93 pounds per hour (Permit Condition 3.3, PTC No. P-040100, August 20, 2004)

Measured CO Emissions: 28.8 pounds per hour
Measured CO Emissions: 0.46 pound per 1,000 pounds steam produced
CO Emission Limit: 1.3 pound per 1,000 pounds steam produced (Permit Condition 3.5, PTC No. P-040100, August 20, 2004)

Operating Rate: 62,231.0 pounds steam produced per hour
Operating Limit: 69,360 pounds steam produced per hour (combined limit for two boilers at facility)
(Permit Condition 3.10, PTC No. P-040100, August 20, 2004)

Stack Parameters:

Stack Velocity:	35.4 fps	Stack Diameter:	52 inches
Actual flow rate:	31,349 acfm	Standard air flow rate:	16,820 dscfm
% moisture:	19.7%	Stack Temp:	262 °F

Control Device Parameters: Emission unit is controlled by electrified filter bed dust collector.
There are no requirements to monitor any operating parameters associated with the control device.

Date protocol approved: 19-Jan-05
Reviewer: Tom Anderson (T.S.) and Tom Harman (CRO)

Test date: 29-Mar-05 Date Report Received: 28-Apr-05
Date test required: 29-Mar-05 Reviewer: Michael Stambulis, Technical Services
DEQ Observers present: Tom Harman (CRO) and Joe Brown (CRO)

APPENDIX C

Annotated Photograph of the Pneumatic Hog Fuel Conveyance System With Emphasis on the HogFuel Cyclone

P-050116

Riley Creek Chilco Sawmill Hog Fuel Handling System

Western Pneumatics 72 Primary Filter High-Efficiency Cyclone

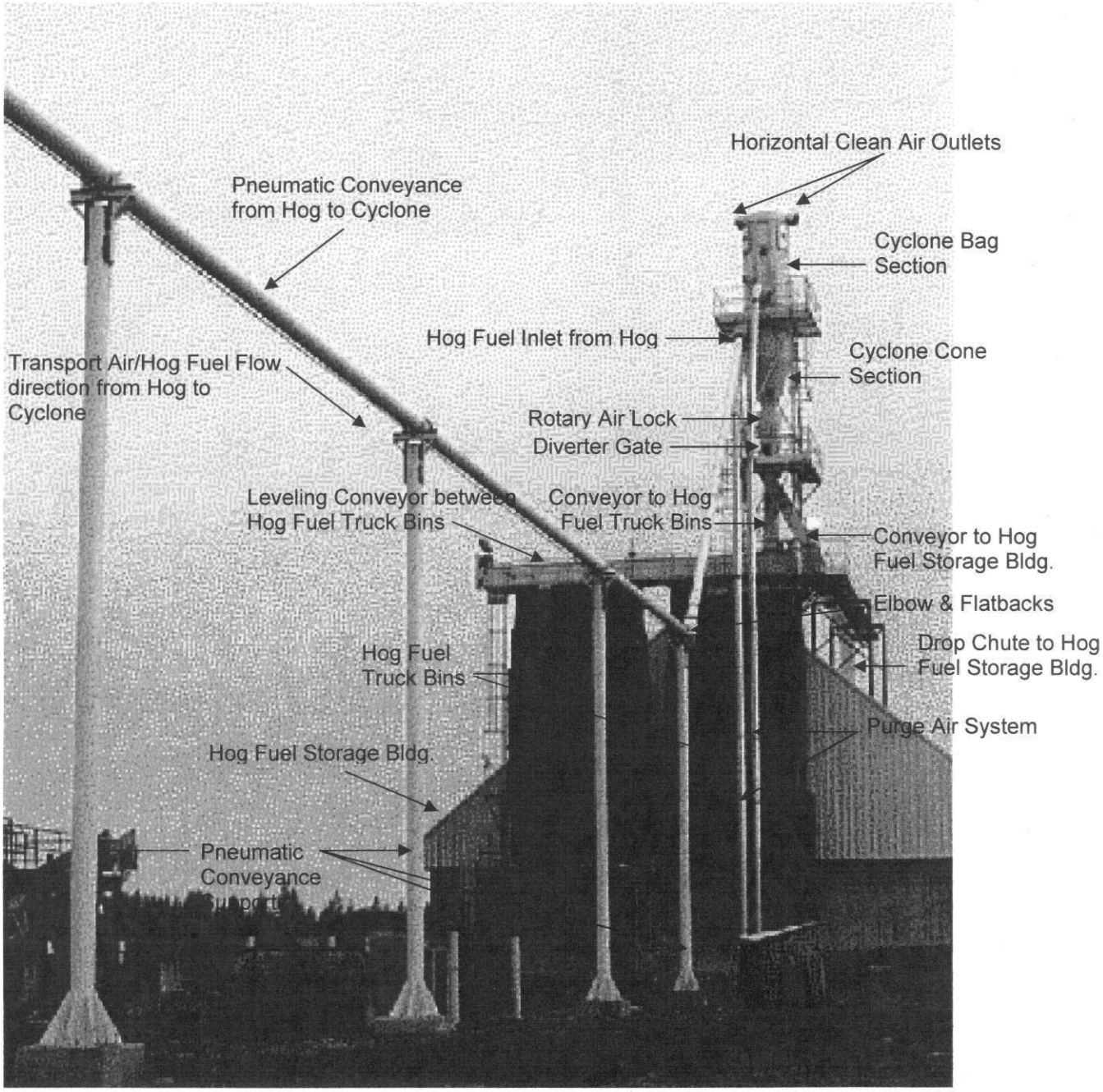

Photo taken 4-5-2005 by
Diane Lorenzen, P.E.
Lorenzen Engineering, Inc.
Annotations 8-8-2005 by
Glenda Empsall, Enviro. Mgr.

APPENDIX D

DEQs Ambient Air Quality Modeling Memorandum

P-050116

MEMORANDUM

DATE: April 15, 2004

TO: Almer Casile, Air Quality Permitting Analyst, Air Quality Division

FROM: Mary Anderson, Modeling Coordinator, Air Quality Division

PROJECT NUMBER: P - 040100

SUBJECT: Modeling Review for the Permit to Construct Application for the Chilco Lake Lumber Company, LLC – dba Riley Creek

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1.0 Summary

The Department of Environmental Quality (DEQ) received a permit to construct application from Chilco Lake Lumber Company, LLC – dba Riley Creek for their sawmill in Athol, ID. Atmospheric dispersion modeling of facility-wide emissions was submitted in support of the PTC application to demonstrate that the stationary source would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02). This modeling analysis included 12 sources and addressed the following criteria pollutants: PM_{10}, SO_2, NO_2, CO, and Pb. This analysis also addressed 18 toxic air pollutants.

Table 1 presents the key assumptions used in the modeling analysis submitted by the applicant.

Table 1. Key assumptions used in modeling analysis submitted by the applicant

Assumption	Explanation
T-RACT for formaldehyde was assumed by the applicant in the modeling analysis	The predicted ambient concentration for formaldehyde is 523% of the AACC.

During the review DEQ identified three discrepancies between the modeling analysis and the application material. These discrepancies included the following: SO_2 emission rate for the natural gas boiler, exit temperature for the EFB media baghouse, and the chromium emission rate for the natural gas boiler. The sensitivity analysis showed that these discrepancies did not make a difference in the design concentration and the demonstration of compliance with applicable standards. The sensitivity analysis results are discussed in Section 4.0.

Based on the results of the sensitivity analyses, DEQ has determined that the submitted modeling analysis demonstrated compliance with all applicable standards.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits

This facility is located in Kootenai County designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}). The applicable regulatory limits for this application are presented in Table 2.

Table 2. Applicable regulatory limits

Pollutant	Averaging Period	Significant Contribution Levels ($\mu g/m^3$)[a, b]	Regulatory Limit ($\mu g/m^3$)[c]	Modeled Value Used[d]
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest
	24-hour	5	150[g]	Highest 2nd highest
CO	8-hour	500	10,000[h]	Highest 2nd highest
	1-hour	2000	40,000[h]	Highest 2nd highest
SO_2	Annual	1	80[h]	Maximum 1st highest
	24-hour	5	365[h]	Highest 2nd highest
	3-hour	25	1,300[h]	Highest 2nd highest
NO_2	Annual	1	100[f]	Maximum 1st highest
1,2-Dichloroethane	Annual	N/A	3.8E-02	Maximum 1st highest
Acetaldehyde	Annual	N/A	4.5E-01	Maximum 1st highest
Arsenic	Annual	N/A	2.3E-04	Maximum 1st highest
Benzene	Annual	N/A	1.2E-01	Maximum 1st highest
Benzo(a)pyrene	Annual	N/A	3.0E-04	Maximum 1st highest
Berylium	Annual	N/A	4.2E-03	Maximum 1st highest
Cadmium	Annual	N/A	5.6E-04	Maximum 1st highest
Carbon tetrachloride	Annual	N/A	6.7E-02	Maximum 1st highest
Chromium	Annual	N/A	8.3E-05	Maximum 1st highest
Chloroform	Annual	N/A	4.3E-02	Maximum 1st highest
Formaldehyde	Annual	N/A	7.7E-02	Maximum 1st highest
Dichloromethane (Methylenechloride)	Annual	N/A	2.4E-01	Maximum 1st highest
Nickel	Annual	N/A	4.2E-03	Maximum 1st highest
Polycyclic Organic Matter (POM)	Annual	N/A	3.0E-04	Maximum 1st highest
2,3,7,8-Tetrachlorodibenzo-p-dioxins	Annual	N/A	2.2E-08	Maximum 1st highest
Vinyl Chloride	Annual	N/A	1.4E-01	Maximum 1st highest
Acrolein	24-hr	N/A	1.25E+01	Maximum 1st highest
Hydrogen chloride	24-hr	N/A	3.75E+02	Maximum 1st highest
Silver	24-hr	N/A	5.00E+00	Maximum 1st highest

a. IDAPA 58.01.01.006.93
b. Micrograms per cubic meter
c. IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.
d. The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants. Concentration at any modeled receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
f. Never expected to be exceeded in any calendar year.
g. Never expected to be exceeded more than once in any calendar year.
h. Not to be exceeded more than once per year.

2.2 Background Concentrations

The appropriate background concentrations for this modeling analysis are presented in Table 3.

Table 3. Background concentrations.

Pollutant	Averaging Period	Background concentrations ($\mu g/m^3$)*
PM_{10}	24-hour	66
	Annual	21
CO	1-hour	13,800
	8-hour	4,600
SO_2	3-hour	42
	24-hour	26
	Annual	8
NO_2	Annual	17
Lead	quarterly	0.03

* Micrograms per cubic meter.

3.0 Assessment of Submitted, Certified Modeling Analysis

This section documents the assessment of the application materials as submitted and certified by the applicant.

3.1 Modeling Methodology

Lorenzen Engineering, Inc conducted the modeling analysis. Table 4 presents the modeling assumptions and parameters used by the applicant. Table 4 also includes DEQ's review and determination of those assumptions and parameters.

Table 4. Modeling parameters.

Parameter	What Facility Submitted	DEQ's Review/Determination
Modeling protocol	A modeling protocol was submitted for prior approval	The protocol was followed
Model Selection	ISC-prime	This is appropriate and correct version was used.
Meteorological Data	DEQ data from Meyer Ranch April 1, 2000 through March 31, 2001	Appropriate
Model Options	Regulatory defaults used	Appropriate
Land Use	Rural land use	Appropriate
Complex Terrain	Complex terrain is present and included in the model,	Appropriate
Building Downwash	Downwash was included	Appropriate?
Receptor Network	25 meter at hotspot areas 50 meter along ambient air boundary 100 meter out to 2000 meters 500 meters out to an additional 5000 meters	This is sufficient to adequately address the maximum design concentration
Facility Layout	N/A	The facility layout used in the model was verified by using the scaled plot plan submitted by the applicant

3.2 Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application. If modeled emissions rates were equal to or slightly greater than the facility's emissions calculated in the permit application or the permitted allowable rate, then it was determined to be appropriate. The only discrepancies were the SO_2 and chromium emission rates for the natural gas boiler. These discrepancies are addressed in Section 4.0, DEQ sensitivity analysis.

Tables 5 and 6 provide criteria pollutant and TAPs emission rates used in the submitted modeling files, respectively.

Table 5. Emission rates for criteria pollutants

Source	Emission Rates (lb/hr)			
	PM_{10}	NO_x	SO_2	CO
Hog Fuel Boiler	6.93	27.5	3.1	90.0
Natural Gas Boiler	0.45	4.47	0.004[a]	1.41
Planer Shavings baghouse	1.24	N/A	N/A	N/A
EFB Media Baghouse	0.23	N/A	N/A	N/A
Sawdust Bin Target Box	0.63	N/A	N/A	N/A
Chip Bin Target Box	1.49	N/A	N/A	N/A
Planer Chip Bin Target Box	0.09	N/A	N/A	N/A
Kilns[b]	4.08	N/A	N/A	N/A

a. Presented as 0.04 lb/hr in the application, see Section 4.0 DEQ Sensitivity Analysis for further discussion.
b. The emission rate listed in this table is the total emission for all kilns. The kilns are modeled as 102 point sources each with an emission rate of 4.0E-02 lb/hr.

Table 6. Emission rates for TAPs			
Pollutant	**Hog Fuel Boiler (lb/hr)**	**Natural Gas Boiler (lb/hr)**	**Kilns[a] (lb/hr)**
Formaldehyde	5.48E-01	4.44E-03	1.46E-01
Arsenic	2.00E-04	1.19E-05	N/A
Benzene	5.24E-01	1.27E-04	N/A
Benzo(a)pyrene	3.25E-04	7.06E-08	N/A
Berylium	1.35E-04	7.06E-07	N/A
Cadmium	3.00E-04	6.51E-05	N/A
Chromium	9.92E-05	7.94E-06[b]	N/A
Nickel	0.00E+00	1.27E-04	N/A
Polycyclic Organic Matter (POM)	3.57E-04	7.06E-07	N/A
Acetaldehyde	1.03E-01	N/A	N/A
Carbon Tetrachloride	5.64E-03	N/A	N/A
Chloroform	3.49E-03	N/A	N/A
1-2 Dichloroethane	3.65E-03	N/A	N/A
Dichloromethane (Methylenechloride)	3.65E-02	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-dioxins	1.11E-09	N/A	N/A
Acrolein	5.00E-01	N/A	N/A
Hydrogen Chloride	3.75E-02	N/A	N/A
Silver	1.00E-04	N/A	N/A
Vinyl Chloride	2.22E-03	N/A	N/A

a. The emission rate listed in this table is the total emission for all kilns. The kilns are modeled as 102 point sources each with an emission rate of 1.43E-03 lb/hr.
b. Presented as 8.24 E-06 lb/hr in the application, see Section 4.0 DEQ Sensitivity Analysis for further discussion.

3.3 Emission Release Parameters

The emission release parameters used in the modeling analysis submitted by the applicant are presented in Table 7.

Table 7. Emission release parameters					
Source	**Stack Exhaust Type**	**Height (ft)**	**Modeled Diameter (m)**	**Modeled Exit Velocity (m/s)**	**Exhaust Temperature (°F)**
Hog Fuel Boiler	Vertical	80	1.32	14.4	303
EFB Media Baghouse	Vertical	15	0.60	3.23	100[a]
Natural Gas Boiler	Rain-cap	55	0.76	0.001[b]	360
Planer Shavings baghouse	Horizontal	15	0.001[b]	0.001[b]	68
Sawdust Bin Target Box	Vertical	37	0.34	32.3	68
Chip Bin Target Box	Vertical	37	0.34	32.3	68
Planer Chip Bin Target Box	Vertical	37	0.34	32.3	68
Kilns	Vent Covers	27.5	0.46	0.001[b]	170

a. Presented as 68°F in the application, see Section 4.0 DEQ Sensitivity Analysis for further discussion.
b. Horizontal and capped sources modeled based on Idaho modeling guidance.

3.4 Results

These results are based on the modeling files submitted by the applicant and reviewed by DEQ.

3.4.1 Full Impact Analysis Results

Table 8. Full impact analysis results

Pollutant	Averaging Period	Facility Ambient Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ambient concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hour	75.8	66	141.8	150	95
	Annual	11.9	21[a]	32.9	50	66
CO	1-hour	602	13,800	14,402	40,000	36
	8-hour	215	4,600	4,815	10,000	48
SO_2	3-hour	10.5	42	52.5	1,300	4
	24-hour	4.73	26	30.7	365	8
	Annual	0.53	8	8.53	80	11
NO_2	Annual	6.15[b]	17	23.1	100	23

[a] The applicant presented a value of 19 ug/m^3 for the PM10 24-hour background concentration. The correct value is 21 ug/m^3, and is used in this table.

[b] The ambient ratio method (ARM) factor of 0.75 has been used to convert NO_x results to NO_2 per 40 CFR 51 Appendix W Guideline on Air Quality Models.

3.4.3 Toxic Air Pollutants Results

Pollutant	Averaging Period	Concentration (ug/m^3)	Regulatory Limit (ug/m^3)	Percent of Limit
1,2-Dichloroethane	Annual	6.10E-04	3.8E-02	2%
Acetaldehyde	Annual	1.73E-02	4.5E-01	4%
Arsenic	Annual	4.00E-05	2.3E-04	17%
Benzene	Annual	8.79E-02	1.2E-01	73%
Benzo(a)pyrene	Annual	5.00E-05	3.0E-04	17%
Berylium	Annual	2.00E-05	4.2E-03	0%
Cadmium	Annual	1.00E-04	5.6E-04	18%
Carbon tetrachloride	Annual	9.50E-04	6.7E-02	1%
Chromium, total	Annual	2.00E-05	8.3E-05	24%
Chloroform	Annual	5.90E-04	4.3E-02	1%
Formaldehyde	Annual	4.03E-01	7.7E-02	523%
Dichloromethane (Methylenechloride)	Annual	6.12E-03	2.4E-01	3%
Nickel	Annual	1.20E-04	4.2E-03	3%
Polycyclic Organic Matter (POM)	Annual	6.00E-05	3.0E-04	20%
2,3,7,8-Tetrachlorodibenzo-p-dioxins	Annual	0.00E+00	2.2E-08	0%
Vinyl Chloride	Annual	3.70E-04	1.4E-01	0%
Acrolein	24-hr	8.24E-01	1.25E+01	7%
Hydrogen chloride	24-hr	6.19E-02	3.75E+02	0%
Silver	24-hr	1.60E-04	5.00E+00	0%

4.0 DEQ Sensitivity Analysis Results

As discussed above, three discrepancies between the modeling analysis and the application material were discovered during DEQ's review. These discrepancies included the following: SO2 emission rate for the natural gas boiler, exit temperature for the EFB media baghouse, and the chromium emission rate for the natural gas boiler. To ensure that these discrepancies did not make a difference in the demonstration of compliance, DEQ performed a sensitivity analysis for these parameters. These parameters were changed in the modeling files to match what was presented in the application. Table 10 presents the changes in modeling parameters. All other modeling assumptions/parameters used by the applicant remained unchanged in this sensitivity analysis. As seen in Table 11, the results of the sensitivity analysis are essentially identical to those submitted by the applicant.

Table 10. Summary of sensitivity analysis.

Parameter	Modeling files submitted by applicant	Changed in Sensitivity analysis, presented in application material
SO_2 emission rate for the natural gas boiler	0.004 lb/hr	0.04 lb/hr
Chromium emission rate for the natural gas boiler	7.94E-06 lb/hr	8.24E-06 lb/hr
Exit temperature for the EFB media baghouse[a]	100°F	68°F

[a] The EFB media baghouse only emits PM_{10}, therefore, this change only effects the PM_{10} design concentration.

Table 11. Results of sensitivity analysis.

Pollutant	Averaging Period	Submitted by Applicant	Sensitivity Analysis
PM_{10}	24-hour	75.8	75.8
	Annual	11.9	11.9
SO_2	3-hour	10.5	10.65
	24-hour	4.73	4.79
	Annual	0.53	0.54